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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,669	03/29/2004	Alexander Rabinovich	0492611-0490	2847
24280 7590 06/11/2007 CHOATE, HALL & STEWART LLP TWO INTERNATIONAL PLACE BOSTON, MA 02110			EXAMINER MAYEKAR, KISHOR	
			ART UNIT 1753	PAPER NUMBER
			MAIL DATE 06/11/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/811,669	<b>Applicant(s)</b> RABINOVICH ET AL.	
	<b>Examiner</b> Kishor Mayekar	<b>Art Unit</b> 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-46 is/are pending in the application.  
     4a) Of the above claim(s) 28-46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>03/04</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-27, drawn to a fuel reformer system, classified in class 422, subclass 186.
  - II. Claims 28-42, drawn to a method of fuel reforming, classified in class 204, subclass 164.
  - III. Claims 43-46, drawn to a fuel reformer system, classified in class 422, subclass 186.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions of Group II and either of Group I or III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process as claimed can be used by another materially different apparatus with different structures, such as apparatus of Group III.

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3. Inventions of Groups I and III are directed to related fuel reformer system. The related inventions are distinct if the (1) the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect; (2) the inventions do not overlap in scope, i.e., are mutually exclusive; and (3) the inventions as claimed are not obvious variants. See MPEP § 806.05(j). In the instant case, the inventions as claimed are mutually exclusive.

4. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Attorney Sam Pasternack on 5 June 2007 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-27. Affirmation of this election must be made by applicant in replying to this Office action. Claims 28-46 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or

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more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 6 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 6, the recitations "plasma air" and "at least one nozzle" are either confusing as to their relation to the system or lacking antecedent basis.

In claim 8, "the recitation "a fuel nozzle" and "the electrodes" are either confusing as to their relation to the system or lacking antecedent basis.

***Claim Rejections - 35 USC § 102 and § 103***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-9, 13-25 and 27 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Cohn et al. (US 6,322,757 B1), a reference cited by Applicant. Cohn's invention is directed to a plasma fuel system. Cohn discloses in Fig. 14 an embodiment wherein the plasma fuel system comprises a plasmatron fuel reformer 10; a reaction extension region 26 connected downstream from the plasmatron fuel reformer; a section connected to the reaction extension with two conduits (read on the recited supplemental nozzle section); a heat exchanger connected downstream from the section; and a water-shift catalytic reactor connected downstream from the heat exchanger. Cohn also discloses in col. 3, lines 42-45 to inject additional amounts of fuel after the plasmatron fuel reformer (read also on the recited supplemental nozzle section). Since the heat exchanger is adapted to increase the hydrogen

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concentration in the reformat and since the water-shift catalytic reactor is adapted to promote a water-shift reaction, each of the heat exchanger and the water-shift catalytic reactor reads on the recited second reaction extension region and the above claims are anticipated or render obvious by Cohn's teachings.

As to the subject matter of claim 4, the selection of the size of the first reaction extension would be within the level of ordinary skill in the art. The same is applied to claim 8.

As to the subject matter of each of claims 6, 7, 13-16, 18, 19 and 22-24 to the intended use of the device, the manner or method in which such device is to be utilized is not germane to the issue of patentability of the device itself.

As to the subject matter of each of claims 17, 20 and 21, Cohn discloses it in Fig. 11.

12. Claims 10-12 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohn '757 in view of Cohn et al. (US 5,852,927). The differences between Cohn '757 and the above claims are the recited limitations in each of the instant claims. Cohn '927 shows that magnetic coil is known for providing rotation and stabilization of the arc (col. 4, line 60 through col. 5, line 20), the plasmatron reaction is exothermic with the produced gas with a temperature in excess of 1000 °C (col. 5, lines 46 and 47), and the fuel may be diesel fuel in addition to hydrocarbon fuel and gasoline (col. 5, lines 40-43). The subject

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matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Cohn '757 as shown by Cohn '927 because i) this would control the arc by employing the magnetic coil; ii) due to the inherent of the exothermic reaction Cohn '757's system is capable of producing the recited temperature of the hot gas; and iii) the selection of any equivalent fuels would be within the level of ordinary skill in the art.

#### *Conclusion*

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-



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217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'K. Mayekar', with a stylized flourish at the end.

Kishor Mayekar  
Primary Examiner  
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